

**Noise Reduction Plan**  
**Former ORP/Building 1 Area**  
**Former Oakland Army Base—EDC Area**  
**Oakland, California**

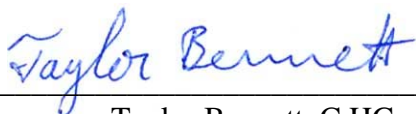
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## 1.0 INTRODUCTION

This Noise Reduction Plan (NRP) has been prepared by Northgate Environmental Management, Inc. (Northgate) on behalf of Pacific States Environmental Contractors, Inc. for the Oakland Base Reuse Authority (OBRA). The NRP will be implemented to mitigate noise generated during remediation of the former Oil Reclaiming Plant (ORP)/Building 1 Area of the former Oakland Army Base—Economic Development Conveyance (EDC) Area (the Site). The Site location is shown on Figure 1.

This NRP has been prepared to comply with the requirements for mitigation of noise that are presented in the following documents:

- Mitigation Measure 4.5–1 of the *Final Environmental Impact Report for the Oakland Army Base Redevelopment Plan* (Final EIR) (City of Oakland, 2002); and
- *Appendix K of Contract Documents for Former ORP/Building 1 Area Remediation Project* (Contract Documents) (EKI, 2005).

### 1.1 Purpose of the NRP

The NRP describes the control techniques, materials, and equipment to be used to mitigate noise impacts resulting from the remediation of the Site. These activities include demolition, excavation, treatment, loading, and transport of materials to and from the former ORP/Building 1 Area.

### 1.2 Acoustical Terms

“Noise” is typically defined as unwanted sound. Sound levels are measured on a logarithmic scale in decibels (dB). The common measure for environmental sound is the “A”-weighted sound level (dBA). “A” scale weighting is an adjustment to measured sound that takes into account the way the human ear responds to sound. A commonly used measurement is the equivalent sound level, or equivalent energy noise level, abbreviated as  $L_{eq}$ . For a given time interval,  $L_{eq}$  is a constant sound level whose acoustic energy is the same as the acoustic energy of the actual, time-varying sound level.

### 1.3 Regulatory Setting

Various local, state, and federal standards have been promulgated to regulate noise. The City of Oakland Noise Ordinance (Oakland Planning Code §17.120.050) sets performance standards for noise levels generated by various activities across real property lines. Table 1 identifies standards for construction noise according to the City’s Noise Ordinance (Final Environmental



Impact Report [EIR], April 2002). It is important to note that these standards apply to noise levels at a given receptor's property line. The Noise Ordinance includes a provision that if the ambient noise level exceeds the standard, the standard shall be adjusted to equal the ambient noise level. The City's noise ordinance also contains nuisance laws regarding persistent construction-related noise (Oakland Planning Code, §8.18.020).

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck passby noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline (Crocker 1997). The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state passby noise standard is consistent with the federal limit of 80 dBA. Vehicle noise limits are implemented through regulatory controls on vehicle manufacturers and by legal sanction of vehicle operators enforced by state and local peace officers (Final EIR, April 2002).

#### **1.4 Local Ambient Noise**

An ambient noise survey was conducted in the residential area east of Highway I-880 in April 2001 as part of the environmental studies performed to support the preparation of the EIR (Final EIR, April 2002). Noise levels were found to be typical for an urban area that includes major transportation facilities. While useful for identifying ambient noise sources that could impact sensitive receptors east of I-880, the ambient noise measurements are not likely to be representative of conditions in the Site vicinity (west of I-880), where heavy truck traffic and commercial/industrial operations at the Port of Oakland and nearby tenants are likely to contribute more ambient noise. The EIR study indicated the most significant consistent noise source east of I-880 is from vehicle traffic on highway I-880. Commercial aircraft are also a significant source of noise. Noise from the Bay Area Rapid Transit (BART) rail operations is a major contributor to the noise environment east of I-880, but is unlikely to be significant in the vicinity of the Site.

#### **1.5 Noise-Sensitive Receptors**

The nearest residential area lies southeast of Wood Street, over 3,000 feet southeast of the Site. Highway I-880, the most significant consistent source of ambient noise in the area, lies between the Site and this residential area. The nearest parks to the Site are Middle Harbor Shoreline Park, Port View Park, and two parks are located on the other side of I-880 from the Site: Raimondi Park, located at 1800 Wood Street and Willow Mini-Park, located at 14th and Willow Streets. Several public and private schools are located east of I-880: Prescott Elementary, Prescott



Development Center, St. Martins De Porres, and McClymonds High. The Oakland Military Institute College Preparatory Academy is located on West 14th Street, approximately 0.5 miles southeast of the Site. The nearest public medical facility to the local area is the West Oakland Health Center (700 Adeline Street), about 0.8 miles from the former Oakland Army Base. The nearest church to the Site is Beth Eden Baptist Church (952 Magnolia Street) (Final EIR, April 2002).

Figure 1 identifies the location of the work area and nearby facilities (e.g., schools, hospitals, and clinics) that could potentially be affected by Site-related noise during remedial construction. These facilities include schools (BOSS—Building Opportunity for Self-Sufficiency, the Jobs Consortium, and the Oakland Military Institute) and medical facilities (the Oakland Veterans Administration Clinic and the Headquarters of U.S. Army Garrison 352D Combat Support). These medical facilities are used specifically for administrative functions, and do not provide inpatient, outpatient, or emergency room services. Figure 2 shows the tenants and businesses in the immediate vicinity of the work area.

The work area is adjacent to Maritime Street and near the Port of Oakland Terminal Facilities. Maritime Street is used heavily by vehicular traffic (primarily tractor-trailers with shipping containers) associated with shipping activities at the Port.

## **1.6 General Scope of Work**

The following primary tasks are to be performed to remediate the former ORP/Building 1 Area for reuse, in accordance with the Contract Documents (EKI, 2005):

1. Prepare the Site for remediation, including installing fencing and signage, decontamination pad, traffic control elements, and construction Field Office;
2. Demolish pavement and other surface and subsurface improvements within the planned excavation area;
3. Remove or cap existing specified Site utilities;
4. Construct the treatment pad and soil stockpile areas and set up work zones;
5. Excavate chemically impacted soil;
6. Stockpile the excavated soil in separate stockpiles;
7. Collect and coordinate analysis of excavation sidewall confirmation and stockpile samples;
8. Treat Building 1 remediation waste to meet Alternate Treatment Standards (ATS), as defined in the Contract Documents (EKI, 2005);



9. Backfill the excavation;
10. Load, transport, and recycle or dispose of demolition debris and stockpiled soil; and
11. Restore Site utilities and paving.

These activities are described in greater detail in the STPP (Northgate, 2005e) and the Contract Documents (EKI, 2005). Typical noise levels during demolition, excavation, and construction activities are expected to range from 80 to 91 dBA (Final EIR, April 2002).

## 1.7 Construction Equipment

The primary tasks that could generate significant noise during remediation of the Site are demolition; construction of the treatment pad and soil stockpile areas; and soil excavation, stockpiling, treatment, loading, and backfilling (see Section 1.7, tasks 2, 5, 6, and 8 through 10). These tasks will use standard construction equipment (excavator, end-dump trucks, front loader, water truck, and haul trucks, as described below). In addition, the soil treatment process will use a spreader and mixer, as described briefly below and in detail in the STPP (Northgate, 2005e). The excavator, front loader, spreader and mixer have the potential to generate extreme levels of noise (greater than 90 dBA), according to the manufacturers' representatives.

- **Excavator**—A Caterpillar™ 330 excavator will be used to excavate chemically impacted soil. The excavator will load the trucks to move the materials to the stockpile areas.
- **End-Dump Trucks**—Ten-wheel end dump trucks will be utilized for hauling the excavated materials on a delineated haul road to the treatment pad and stockpile areas.
- **Front Loader**—A front loader will remain on the treatment pad during remediation operations and move the material into stockpiles and spread the batches for the mixing process.
- **Spreader**—The Spreader utilized for reagent distribution is custom-made for the Contractor for use during soil stabilization. The technical specifications compare to a typical spreader used for agricultural purposes.
- **Mixer**—The mixer to be utilized is a Wirtgen America Inc. WR 2500 Super Road Reclaimer and Soil Stabilizer™ or a CMI RS 650, depending on the availability. The WR 2500 mixer is equipped with soundproofing as a standard feature. The external noise level for the WR 2500 mixer during operation is 106 dBA (measured at 40 cm from the engine center according to ISO 4872) and at the operator's stand is 77 dBA. The noise level for the RS 650 mixer during operation ranges from 91 dBA at the operator's platform to 95 dBA, depending on location (personal communication with Mike Ward of CMI). In addition, a water truck is attached to the mixer during initial hydration of cement.



- **Water Truck**—The water truck will be used as necessary to control dust and to moisten materials to hydrate the cement.
- **Haul Trucks**—Haul trucks will be used to remove treated and other unsuitable materials off site to disposal facilities. There are a number of truck types that may be used depending on the use and trucking company.

## **1.8 Activities Covered by the NRP**

Noise Reduction measures specified in this document will be implemented during all demolition, earthwork, and construction activities for remediation of the former ORP/Building 1 Area, except as noted below. Noise will typically be generated during demolition and soil excavation activities and as a result of truck traffic, loading of transportation vehicles, soil treatment, and other earthwork. Noise will also be generated during final site grading, restoration, and construction activities.



## **2.0 NOISE REDUCTION MEASURES**

Noise reduction measures will be implemented to reduce the amount of noise and impacts from noise during remediation at the Site. All work will be performed in compliance with applicable laws and regulations, including the City of Oakland Noise Ordinance (Oakland Planning Code\$ 17.120.050) regarding construction-related noise. The Contractor may elect any combination of legal, non-polluting methods to maintain or reduce noise to threshold levels or lower, as long as those methods to not result in other significant environmental impacts or create a substantial public nuisance. A pre-construction meeting will be held with the OBRA Representative and the Contractor to confirm that noise mitigation and practices in accordance with the Plan are complete prior to proceeding with construction activities.

### **2.1 Minimum Noise Reduction Requirements**

In accordance with Mitigation Measures 4.5–1 of the Final EIR (City of Oakland, 2002), The Contractor will implement the following minimum noise reduction measures prior to any required remediation activities.

#### **2.1.1 Schedule**

The construction schedule is presented in Figure 3. With respect to the schedule, the following noise reduction measures will be implemented:

- To the extent feasible, only one piece of equipment that generates extreme levels of noise (greater than 90 dBA) will be operated at a time, (except during soil excavation and treatment, which will require the simultaneous operation of the of some of the following pieces of equipment: excavator, spreader, mixer, front loader, and end-dump trucks);
- Only activities that generate low and moderate levels of noise (less than 90 dBA) will be permitted between the hours of 7:00 AM to 8:00 AM, 12:30 PM to 1:30 PM, and 4:00 PM to 7:00 PM;
- Standard construction activities will be limited to between 7:00 AM and 7:00 PM, Monday through Friday (excluding state, or federal holidays). No construction activities will be allowed on weekends, unless expressly permitted or modified by the provisions of a building and/or grading permit.

#### **2.1.2 Other Equipment, Methods, and Implementation**

Additional noise reduction equipment, methods, and implementation are itemized below:





- A pre-construction meeting will be held with the OBRA Representative and the Contractor to confirm that noise mitigation and practices in accordance with the Plan are complete prior to proceeding with construction activities;
- All construction equipment, fixed and mobile, and motor vehicles will be properly maintained to minimize noise generation. This includes maintaining equipment silencers, shields, and mufflers in proper operating order. "Quiet package" or "hush" equipment, if available, will be used. All equipment will be operated in the quietest manner practicable;
- Equipment and trucks used for construction will use best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible);
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction will be hydraulically or electrically powered wherever possible to avoid noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compress-air exhaust will be used. Quieter procedures will be used, such as drills rather than impact equipment, where practicable;
- Stationary noise sources will be located as far from sensitive receptors as possible, and they should be muffled and enclosed within temporary sheds, or insulation barriers, or other measures should be incorporated to the extent feasible;
- Material stockpiles and vehicle staging areas will be located as far as practicable from dwellings;
- Physical barriers and screens may be used to attenuate noise;
- Project workers exposed to noise levels above 80 dBA will be provided personal protective equipment for hearing protection;
- Areas where noise levels are routinely expected to exceed 80 dBA will be clearly posted "Hearing Protection Required in this Area"; and
- A process will be established for responding to and tracking complaints pertaining to construction noise (Section 4.0).

## **2.2 Additional Noise Reduction Measures During Activities that Generate Extreme Noise Levels Greater than 90 dBA**

Additional noise reduction techniques will be implemented during activities that may generate extreme noise levels greater than 90 dBA, which include demolition (removal of existing asphalt paving) and soil excavation, stockpiling, treatment, loading, and backfilling (see Section 1.7,



tasks 2, 5, 6, and 8 through 10). These additional noise reduction techniques will include some or all of the following:

- Limit activity that generates extreme noise levels greater than 90 dBA to between 8:00 AM and 4:00 PM, Monday through Friday, with no activity generating extreme levels of noise between 12:30 and 1:30 PM. No construction activities that generate extreme levels of noise will be allowed on Saturdays, Sundays, or holidays unless expressly permitted or modified by the provisions of a building and/or grading permit;
- Erect temporary plywood noise barriers around the entire construction site;
- Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings; and
- Monitor the effectiveness of noise attenuation measures by taking noise measurements (monitoring procedures are described in Section 3.0).



### **3.0 NOISE MONITORING**

Noise monitoring will be performed as necessary to monitor compliance with the of Oakland's Noise Ordinance (Oakland Planning Code § 17.120.050), which sets performance standards for noise levels generated by various activities across real property lines (Table 1), and to assess the effectiveness of noise reduction measures.

#### **3.1 Locations**

Noise monitoring will be conducted at a minimum of one of the following four locations, as shown on Figure 4, along the perimeter of the Site:

- The intersection of Bataan Avenue and Attu Street;
- The intersection of Bataan Avenue, Corregidor Avenue and Africa Street;
- 80 feet northeast of the intersection of Africa Street and Alaska Street; and
- 120 feet northwest of the intersection of Alaska Street and Australia Street.

These locations have been selected based on the locations where noise-generating heavy equipment will be operated and to allow flexibility in monitoring noise at the Site perimeter with respect to potential noise-sensitive receptors (Section 1.5). Pacific States Environmental Contractors, Inc. (Pacific States) may modify these locations, with authorization from the OBRA's Representative, based on the type and location of work being conducted.

If a complaint pertaining to construction noise is received, the procedures in Section 4.0 will be followed to track and respond to the noise complaint. To investigate the source of the noise problem and assess whether additional noise reduction measures are warranted to address the problem, the Construction Complaint Manager will use a portable sound-level meter or octave-band noise analyzer to conduct a walk-around survey of the noise level at the receiver's property line (with the owner's permission). These measurements will be compared with the City's Noise Ordinance standards for long-term construction (Table 1).

#### **3.2 Equipment**

The sound-level meter will meet applicable Type 2 portions of the American National Standards Institute (ANSI) Standards S1.25-1978 and/or S1.4-1983 and the International Electrotechnical Commission Publications 651 and 804, "Specifications for Personal Noise Dosimeters," which set performance and accuracy tolerances (for example, a Quest Technologies Model 2900). The sound-level meter will be set at slow time-response using the A-weighted decibel scale (dBA). The microphone will be fitted with a windscreen and set at a height of 5 feet above the ground.



The sound-level meter will have data-logging capabilities for at least a 12-hour workday at 1-minute intervals.

Spot measurements also may be collected using a portable octave-band noise analyzer. All noise measuring instruments will be calibrated in accordance with the manufacturer's recommendations.

### **3.3 Schedule**

A baseline survey of ambient noise levels at the Site will be conducted before remediation activities begin. The baseline survey will measure noise levels during standard construction hours (between 7:00 AM and 7:00 PM) on a weekday. If the baseline survey indicates that ambient noise levels at the Site are higher than the City's noise ordinance standard (i.e., greater than 70 dBA), the standard may be adjusted to equal the ambient noise level.

On the initial day of each remediation activity (demolition, excavation, treatment, stockpiling, loading, and backfilling), noise measurements will be collected at a minimum of one of the perimeter monitoring locations described in Section 3.1. The noise measurements will be of sufficient duration to assess whether the noise level generated by each type of remediation activity has the potential to exceed the City's noise ordinance standard at the property line, and in any case will not be less than one hour. If the initial day's noise measurements indicate the potential for the noise ordinance standard to be exceeded, additional noise reduction measures will be considered.

### **3.4 Record-Keeping and Reporting**

Each day's test records will include the calibration date and time, test start date and time, end date and time, and elapsed time. For each one-minute time history interval, the  $L_{eq}$ , maximum measured sound level ( $L_{max}$ ), and the time-weighted average (TWA) sound level projected over 8 hours will be recorded. If the sound-level meter is moved to a new location, the meter will be restarted and the data for different monitoring locations will be recorded and analyzed separately.

Real-time noise monitoring results will be made available to the OBRA Representative on request during the progress of the remedial activities to evaluate noise control measures. Electronic noise level data collected using the noise-level meter will be downloaded and archived from the instrument onto a personal computer at the end of each work day in which monitoring is performed. Unformatted data logs will then be available in the field to the OBRA Representative, if requested.



## 4.0 COMPLAINT PROCEDURES

The process for responding to and tracking complaints pertaining to construction noise is described below.

### 4.1 Notification and Signs

A notification letter will be delivered to neighbors within 300 feet of the project construction area at least 10 days in advance of construction activities. The notification letter will describe procedures to notify the Construction Complaint Manager of complaints regarding construction-related noise and will provide key contact telephone numbers.

Signs pertaining to complaint procedures will be posted at the locations shown on Figure 4. The signs will have dimensions of at least 10 by 20 inches and will provide the following information:

- Contact telephone number for the Construction Complaint Manager;
- Permitted construction days and hours;
- Day and evening contact telephone numbers for the job site (Project Manager); and
- Evening telephone number for the City in the event of a problem.

### 4.2 Key Telephone Numbers

The following list identifies the key personnel who are referred to in this NRP and/or responsible for implementing the NRP:

*Project Manager:* Keith Wayne (Pacific States)

*Site Supervisor/Construction Complaint Manager:* Kevin Stonestreet (Pacific States)

Key telephone numbers for this project are as follows:

- Oakland Police Non-Emergency.....(510) 777-3333
- Oakland Building Services.....(510) 238-3443
- Pacific States Site Supervisor/Construction.....(925) 803-4333  
Complaint Manager (Kevin Stonestreet)
- Pacific States Project Manager.....(925) 803-4333  
(Keith Wayne)



### 4.3 Complaint Procedures

Complaints should first be referred to the Construction Complaint Manager at the contact telephone number listed in Section 4.2. The Construction Complaint Manager will take the following steps to respond to and track complaints pertaining to construction noise:

- Enter the date and time the complaint was received, contact information for the person initiating the complaint, and the nature of the complaint into the Construction Noise Complaint log book, which will be maintained in the Field Office;
- Inform the Project Manager and OBRA Representative that a noise complaint has been received;
- Investigate and identify the source of the construction noise causing the complaint;
- Measure the sound level of the construction noise causing the complaint at the receptor's property line, in accordance with monitoring procedures described in Section 2.4;
- Assess whether the sound causing the complaint exceeds the City of Oakland's Noise Ordinance standards (Table 1);
- If corrective measures are required to achieve compliance with the City of Oakland's Noise Ordinance standards, consult with the Project Manager and OBRA Representative to decide which additional noise reduction measures to implement, as described in Sections 2.2 and 2.3; and
- Measure the sound level of construction noise at the receptor's property line, in accordance with monitoring procedures described in Section 2.4, to assess the effectiveness of noise reduction measures.

Within 24 hours after receiving a verified complaint that noise levels have exceeded the City's Noise Ordinance standard, or at the end of each work day, the OBRA Representative will notify the City Building Services staff and Oakland Police Department that a complaint was received and describe the actions taken to correct the problem.



## 5.0 REFERENCES

City of Oakland, 2002, *Final Environmental Impact Report for the Oakland Army Base Redevelopment Plan*.

Erler and Kalinowski, Inc., 2004, *Draft Remedial Design and Implementation Plan for the Former ORP/Building 1 Area, Former Oakland Army Base-EDC Area*.

Erler and Kalinowski, Inc., 2005, *Contract Documents for Former ORP/Building 1 Area Remediation Project*.



## **TABLES**





**TABLE 1**  
**City of Oakland Construction Noise Standards**  
**at Receiving Property Line**  
**(dBA) <sup>(1)</sup>**

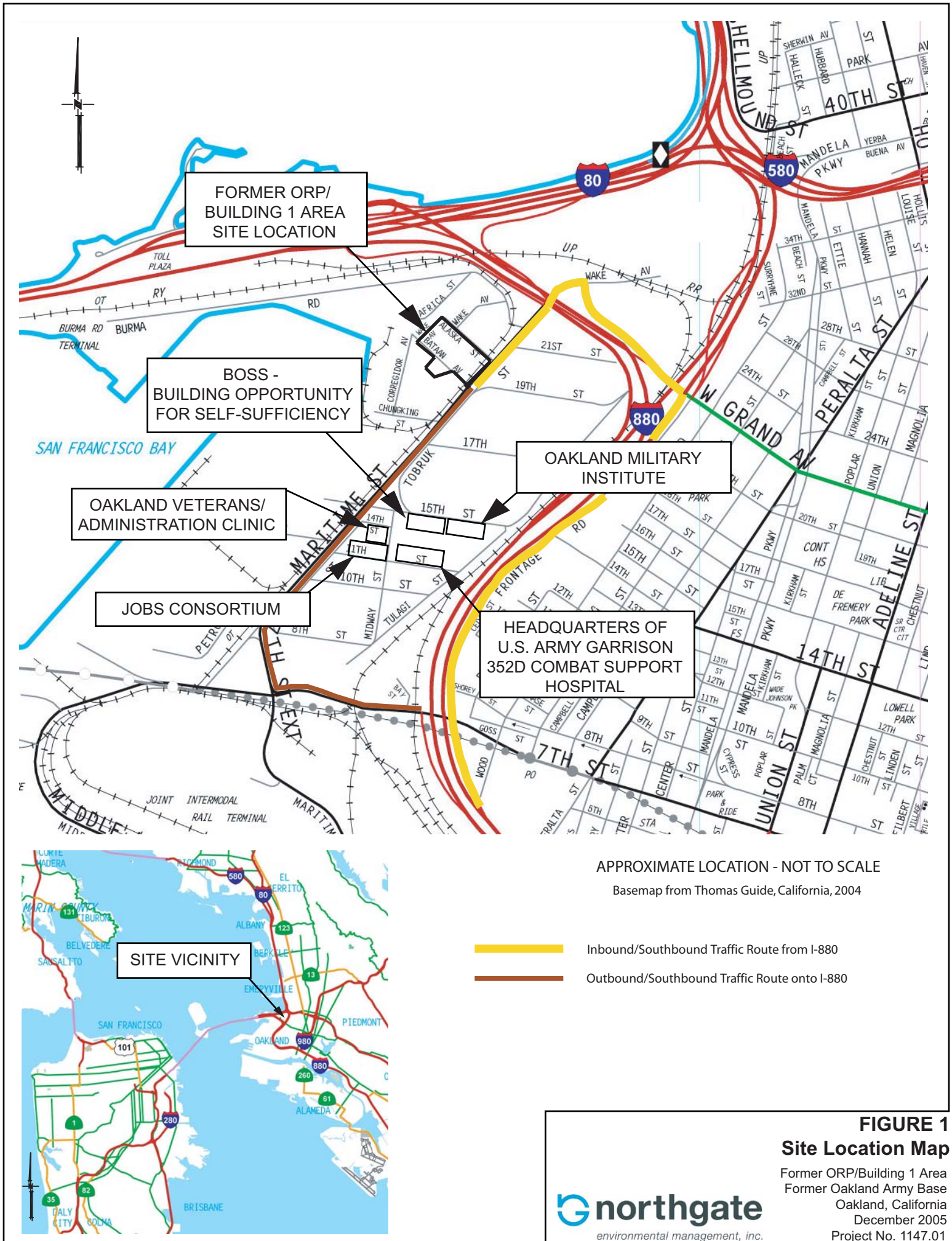
Receiving Land Use	Maximum Allowable Noise Level (dBA) <sup>1</sup>	
	Weekdays 7 AM to 7 PM	Weekends 9 AM to 8 PM
<i>Less Than 10 Days</i>		
Residential	80	65
Commercial/Industrial	85	70
<i>More Than 10 Days</i>		
Residential	65	55
Commercial / Industrial	70	60

Source: Oakland Planning Code, Section 17.120.050

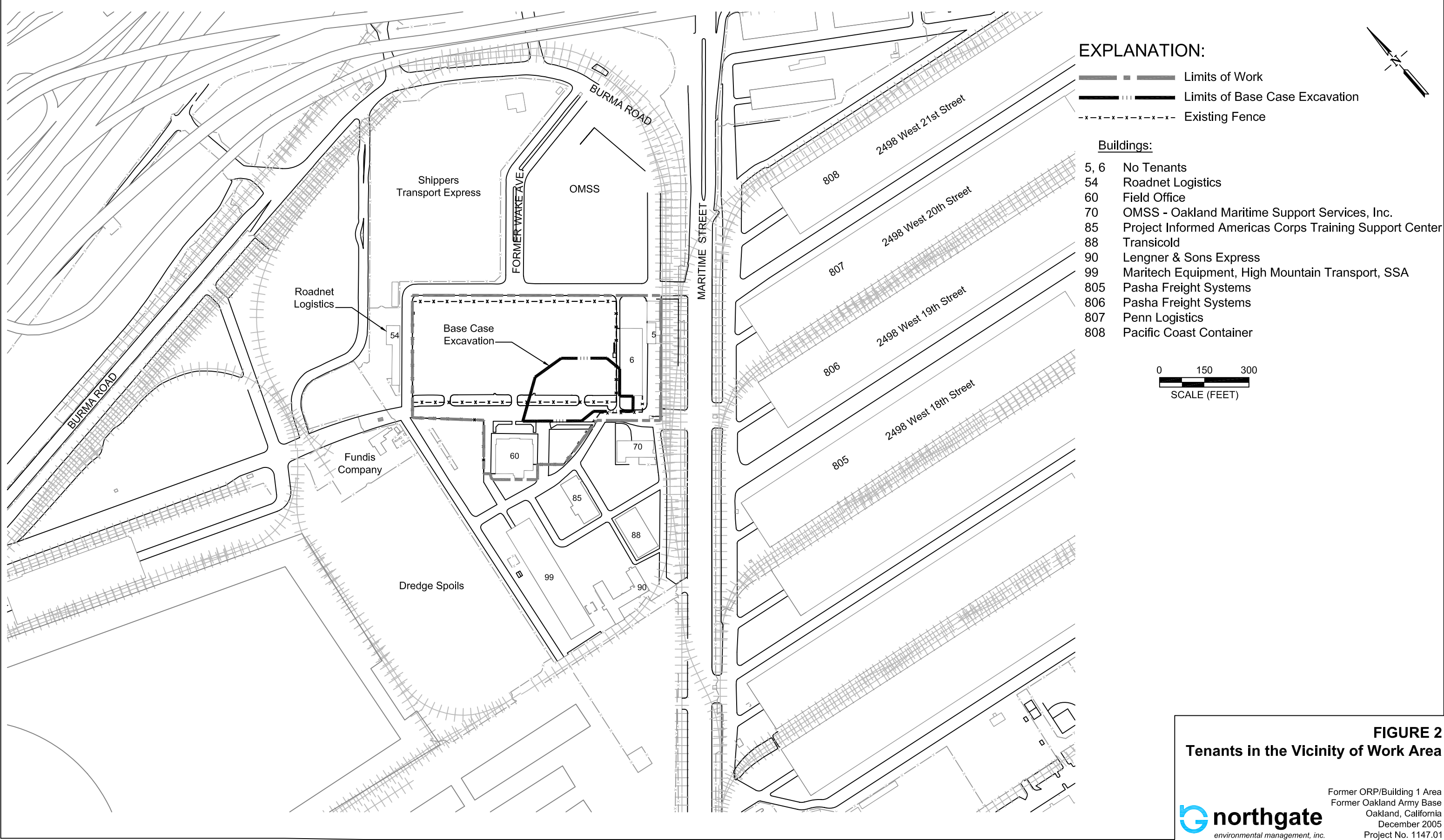
<sup>(1)</sup> If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

## **FIGURES**

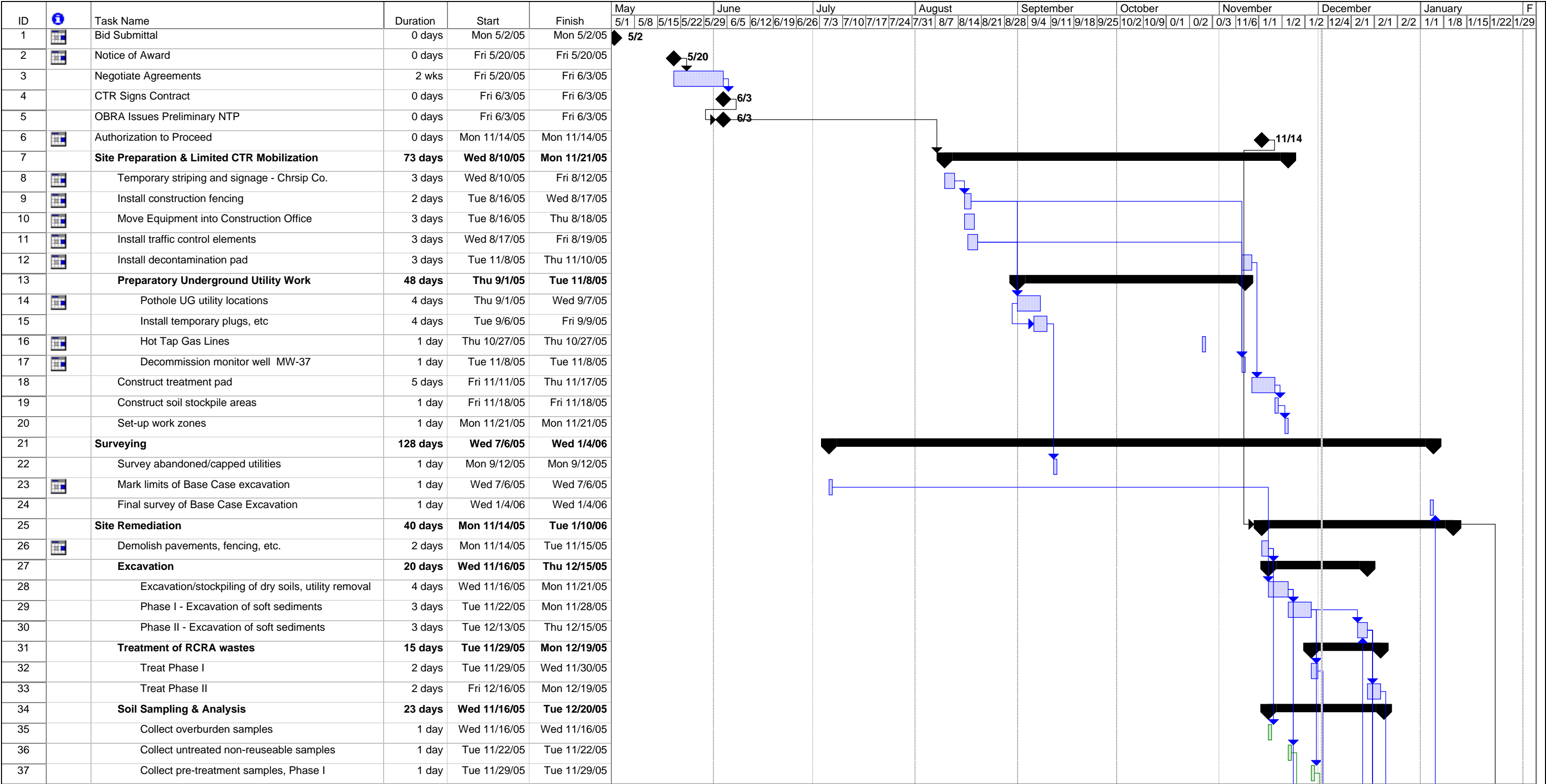








**FIGURE 2**  
**Tenants in the Vicinity of Work Area**



Project: Bldg 1 - ORP Remediation ST  
Date: Fri 12/2/05

Task

Split

Progress

Milestone

Summary

Project Summary

External Tasks

External Milestone

Deadline

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**FIGURE 3**  
**Project Schedule**  
  
Former ORP/Building 1 Area  
Former Oakland Army Base  
Oakland, California  
December 2005  
Project No. 1147.01





